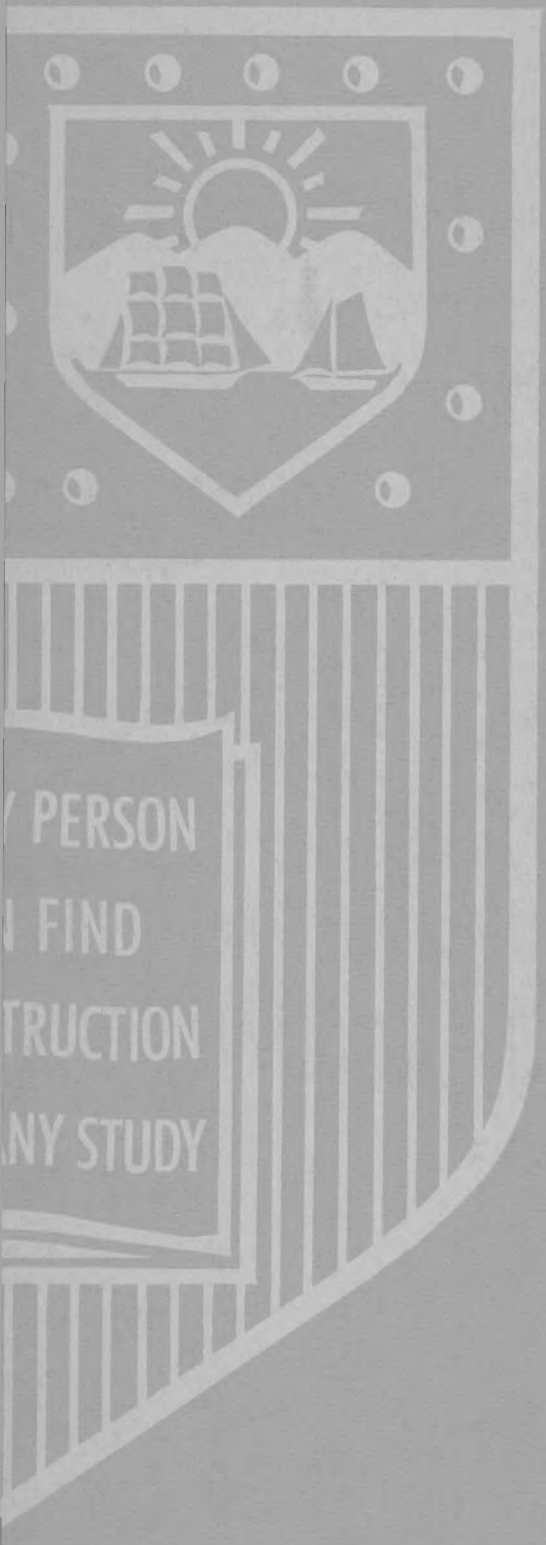
ıell University Announcements



Officer

Education

Cornell University

Officer Education

1974–75

The Departments of Military Science,
Naval Science, and Aerospace Studies

Cornell University Announcements

Vol. 66 of the Cornell University Announcements consists of twenty-two catalogs, of which this is number 8, dated May 1, 1974. Publication dates: twenty-two times a year (four times in August; three times in January and March; twice in June, July, September, and November; once in April, May, October, and December). Publisher: Cornell University, Sheldon Court, 420 College Avenue, Ithaca, New York 14850. Second-class postage paid at Ithaca, New York.

1974–75

Cornell Academic Calendar

Registration, new students	Thursday, August 29
Registration, continuing and rejoining students	Friday, August 30
Fall term instruction begins	Monday, September 2
Thanksgiving recess:	
Instruction suspended, 1:10 p.m.	Wednesday, November 27
Instruction resumed, 7:30 a.m.	Monday, December 2
Fall term instruction ends, 1:10 p.m.	Saturday, December 7
Final examinations begin	Friday, December 13
Final examinations end	Saturday, December 21
Registration, new and rejoining students	Thursday, January 23
Registration, continuing students	Friday, January 24
Spring term instruction begins, 7:30 a.m.	Monday, January 27
Spring recess:	
Instruction suspended, 1:10 p.m.	Saturday, March 22
Instruction resumed, 7:30 a.m.	Monday, March 31
Spring term instruction ends, 1:10 p.m.	Saturday, May 10
Final examinations begin	Monday, May 19
Final examinations end	Wednesday, May 28
Commencement Day	Monday, June 2

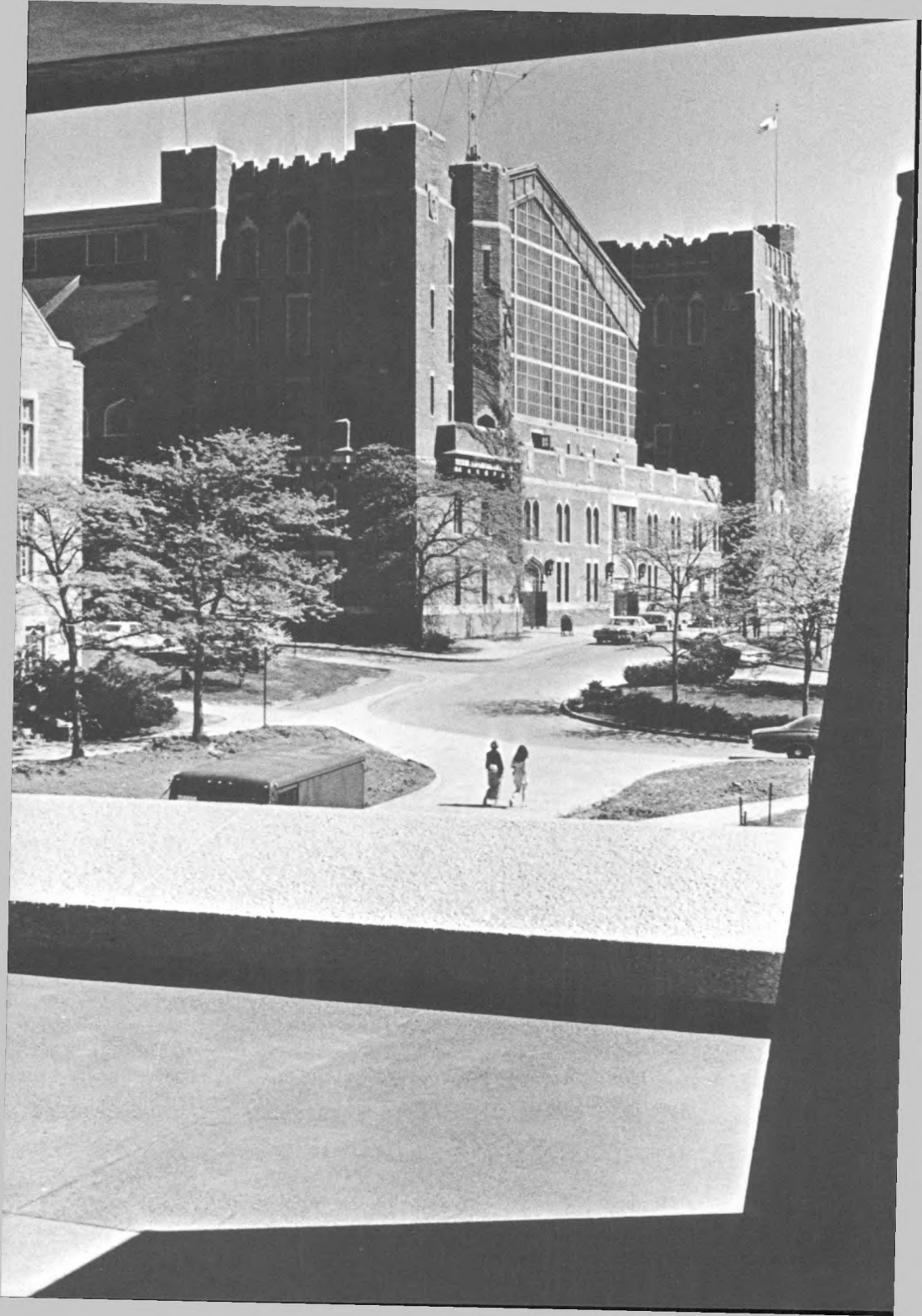
The dates shown in the Academic Calendar are subject to change at any time by official action of Cornell University.

In enacting this calendar, the University Senate has scheduled classes on religious holidays. It is the intent of Senate legislation that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

Announcement

Contents

The courses and curricula described in this *Announcement*, and the teaching personnel listed herein, are subject to change at any time by official action of Cornell University.



Cornell University

Officer Education

Cornell University was founded in 1865 through the joint efforts of Ezra Cornell and Andrew Dickson White. Together they conceived the plan of combining the land grant provided under the Morrill Act of 1862 with the land and money given by Ezra Cornell to endow the new university. Under the provisions of the Morrill Act, military instruction began at Cornell in 1868 and has continued for more than one hundred years although many changes have occurred.

At certain periods in the University's history, the uniform was the accepted dress, cadets moving in formation were a common sight, and the Quadrangle often bustled with reviews, tent pitching, and related activities. In 1914, the state legislature authorized the building of the Drill Hall (later named Barton Hall in honor of Colonel Frank A. Barton '91) with a floor bigger than a football field, and, in 1916, a unit of the Reserve Officers Training Corps was established at Cornell.

Throughout the years Cornell's programs in officer education have provided many outstanding leaders who have contributed much in the military service of the nation.

Officer education today has evolved from emphasis on drill and formations into programs with greater concern for the development of leadership and management skills, along with knowledge of the social sciences, engineering, and other relevant areas, all of which contribute to the optimum performance of young officers in a modern and progressive military organization. Officer education at Cornell is designed for students who choose either to serve as officers in the reserve or regular military forces. Financial remuneration is received for at least part of the training period.

The programs in officer education offered at Cornell allow a student to complete regular academic work and, at the same time, prepare for military service, following graduation, as a commissioned officer in any of the three armed services of the United States. Students who wish to undertake graduate study are often granted active duty deferments to do so.

All academic courses of the University are open to students of all races, religions, ethnic origins, ages, sexes, and political persuasions. No requirement, prerequisite, device, rule, or other means shall be used by any employee of the University to encourage, establish, or maintain segregation on the basis of race, religion, ethnic origin, age, sex, or political persuasion in any academic course of the University.

Programs leading to commissioning and service in the Army are offered by the Department of Military Science. That department is headed by an officer of the United States Army who is the commanding officer of the Cornell Army ROTC Instructor Group. The Department of Naval Science offers programs leading to commissioning and service in the Navy (with a Marine Corps option). That department is headed by an officer of the United States Navy who is the commanding officer of the Cornell Naval ROTC unit. The Department of Aerospace Studies is headed by an officer of the United States Air Force who is commanding officer of the Cornell Air Force ROTC Detachment. That department offers programs leading to commissioning and service in the Air Force.

Eligibility

An official statement of the Cornell University Board of Trustees asserts that "It is the policy of Cornell University actively to support equality of educational opportunity. No student shall be denied admission to the University or be discriminated against otherwise because of race, color, creed, religion, national origin, or sex." The United States Department of Defense is committed to a similar policy.

Any student accepted by the various schools and colleges at Cornell may enroll in any of the officer education programs so long as the specific requirements of the particular program of interest are met.

Any qualified student, registered in one of the schools in the region, may enroll in an ROTC

program at Cornell University with the objective of gaining a commission. Enrollment is accomplished through Cornell's Extramural Division with a nominal fee charged for registration in military-taught courses.

University-ROTC Relationships

On December 1, 1971 the Committee on University-ROTC Relationships was established as a standing committee of the Faculty Council of Representatives (FCR). Its membership includes faculty, student, administration, and military representation. Committee responsibilities include, but are not limited to, serving as an educational policy committee for the ROTC programs. The committee specifically is called on to report annually to the FCR in a spring meeting.

The report includes evaluations and recommendations for credit for the military-taught courses and recommendations for changes for the following year. Individual colleges and schools receive the report and act independently in determining the extent of credit which will be allowed toward their degree requirements.

Scheduling

Applicants who know to which service they plan to apply should inform the appropriate ROTC office and the particular college or school at Cornell as early as possible so that academic schedules will include required ROTC activities.

Academic schedules for incoming freshmen are made up in the individual colleges during the summer. It is desirable that the student's wishes concerning ROTC be known when schedules are planned to avoid the possible inconvenience of adjusting schedules on registration day. Students are advised to visit the appropriate ROTC office prior to registration.

Cornell University

United States Army ROTC Program

The primary objective of the Army ROTC (AROTC) program at Cornell is to develop and commission as junior officers, men and women who have the qualifications and potential for service as officers in the reserve components of the United States Army. Opportunities are also available to those men and women desiring a career in the Regular Army. Intermediate objectives are to provide AROTC students with an understanding of the fundamentals of responsibility, integrity, and self-discipline, as well as an appreciation of the citizen's role in national defense. The application of the decision-making process to a variety of situations is given major emphasis as a valuable aid in developing leadership potential.

These objectives are achieved through a three-part program normally covering four years. The program includes specific courses in military science, academic subjects that assure a well-rounded education, and practical training in leadership through participation in the Cadet Corps (including attendance at a six-week summer camp at an Army installation). The combination prepares the student for commissioning and effective performance in any of the several branches of service of the Army. The student's academic major, academic performance, leadership ability, personal desires, and the needs of the Army determine the branch of the Army in which he or she is commissioned upon graduation.

Requirements for Enrolling

Applicants must be citizens of the United States. (Noncitizens may enroll and will receive certificates acknowledging completion of the course but do not receive commissions.)

An applicant's vision must be correctable to a minimum of 20/20 in one eye and 20/400 in the other eye. Height must be at least 60 inches and no more than 80 inches, although exceptions will be considered. The weight requirement varies according to height. Overall sound mental and physical condition is essential.

Four-Year Program

The four-year program is open to students in their freshman year or, with the approval of military and University authorities, to sophomores in a five-year degree program. A student must also be physically qualified under existing regulations and, with certain exceptions, must be a citizen of the United States.

Veterans of the armed forces of the United States, and students entering Cornell with AROTC credit from secondary or military schools (Junior Division AROTC) may also enroll and may receive advanced standing.

During the first two years, students pursue the basic program (MS I and II), during the next two years, they are in the advanced program (MS III and IV). A total of sixteen credit hours of professional military subjects (an average of about two classroom hours a week each semester) is required. In addition, twelve credit hours of specified academic subjects are required. Throughout the four years, cadets spend one and one-half hours a week each semester in practical leadership training for which there is no academic credit. All cadets attend a six-week camp between the junior and senior year.

Basic Program (MS I and MS II)

Students in the basic program take one classroom course in military science each semester for which they receive academic credit. These courses include study of the principles and techniques of leadership and management, the evolution of warfare, military topography, and small-unit tactics. In addition, students spend one and one-half hours a week in practical leadership training where the principles taught in the classroom are applied.

Students in the basic program are also required to take six credit hours of University academic course work in communicative arts (three hours each). These courses taken as


CORNELL

electives or to meet other University or degree requirements are counted, so that, with proper planning, the requirement usually does not entail additional work. Details concerning the academic portion of the curriculum may be obtained from the AROTC unit in Barton Hall.

Advanced Program (MS III and MS IV)

The advanced program is open to students who have successfully completed the basic program and are approved by the professor of military science. It is also open to students who have appropriate advanced standing either through attendance at the basic summer camp (see Two-Year Program, this page), or through prior military training or service.

Any student entering the advanced program must have two years of academic work remaining at Cornell and must be of such age as will allow qualification for a baccalaureate degree and commissioning before the age of twenty-eight. The student must also pass such physical and aptitude tests as may be prescribed.

When students are accepted for the advanced program they execute a written contract with the United States government. Under terms of the contract they agree to complete the advanced program and to accept a commission if tendered. Concurrent with the signing of the contract students enlist in the United States Army Reserve, for control purposes.

Classroom study in the advanced program includes one military science course each semester on leadership and management, small-unit tactics, and command and staff organization. A student must also complete six credit hours of University advanced-level management courses. The one and one-half hours a week of practical leadership training continues, and, between the junior and senior year, all cadets attend a six-week advanced summer camp.

Flight Instruction Program

The Army ROTC Flight Instruction Program is offered at no cost to selected students in the second year of the advanced program, usually the senior year of college. Students in the Program receive a basic introduction to the principles of flying during ground school, practice flying with approved instructor pilots, and solo flying. Flight instruction is given by a civilian flying school, near Cornell, which has the approval of the Federal Aviation Agency, the Department of the Army, and Cornell University.

The Program is conducted as an extracurricular activity. Each student receives thirty-five hours of ground instruction and thirty-six and one-half hours of in-flight instruction.

Qualifying requirements for flight instruction are few, but strict. A sufficiently high academic standing and approval from both the professor of military science and the dean of the individual's school are required. A series of flight aptitude tests and physical examinations must be satisfactorily completed. (Uncorrected distant vision of at least 20/50 correctable to 20/20 is required.) Parental permission is necessary for students under twenty-one years of age.

Choice of Branch

Cadets in the second year of the advanced program (normally the senior year) may specify the branch of the Army—such as Infantry, Corps of Engineers, Armor, Signal Corps, Quartermaster, Finance, Ordnance, Adjutant General, Judge Advocate General, Artillery, Medical Service, Military Intelligence, Military Police—in which they prefer to serve. They are notified in the spring, before commissioning, of the branch to which they are assigned. The likelihood of appointment in a chosen branch depends upon the student's academic and ROTC performance, and the needs of the Army at the time.

Two-Year Program

The two-year program consists of the last two years (the advanced program) of the regular four-year program plus a basic six-week summer camp preceding enrollment. (See this page for details of the advanced program.)

The two-year program is open to selected students who have two years of academic study remaining at Cornell or any other institution. Applications are accepted from December to April, and selected students are notified in May. Selectees are then required to complete the basic six-week summer camp before registering in the AROTC advanced program the following fall. They must also pass specified physical requirements and execute the same written contract as those students who go into the advanced program after completing the regular basic program.

Benefits

Each cadet in the advanced program receives $100 per month for ten months a year. While attending the advanced summer camp (between the junior and senior years), each cadet receives approximately $450 plus an allowance for travel to and from camp. Uniforms, textbooks, and supplies required by AROTC are provided by the Army.

A cadet in the two-year program receives the same payments as other cadets in the advanced program, and, in addition, receives $480 and

travel allowance for the basic summer camp prior to entry into the advanced program.

Scholarships

A scholarship cadet receives the same benefits as other enrollees in the advanced program and, in addition, receives $100 per month for ten months each of the freshman and sophomore years, and all tuition, fees, textbooks, and classroom materials for the duration of the scholarship.

Scholarships are awarded on the basis of merit and are available for one, two, three, or four years. Four-year AROTC scholarships are awarded to selected high school seniors. Additional scholarships are awarded each year to outstanding students in the freshman, sophomore, and junior class. Cadets who are awarded scholarships continue to receive scholarship support until graduation so long as they fulfill the requirements.

The minimum active duty requirement for all scholarship students is four years.

Commissioning

All students who successfully complete the AROTC advanced program including the advanced summer camp, and who are awarded a baccalaureate degree, are, upon graduation, commissioned as second lieutenants; most are commissioned in the United States Army Reserve. (A few are commissioned in the Regular Army: see Distinguished Military Students, below.) AROTC graduates commissioned in the United States Army Reserve will be ordered to active duty within one year of graduation unless deferred for graduate study.

Distinguished Military Students

Some senior AROTC cadets with high academic achievement and outstanding military qualities are designated as Distinguished Military Students (DMS). All AROTC cadets, scholarship and nonscholarship, are eligible to compete. DMS students may be commissioned in the Regular Army rather than the Reserve; those who are so commissioned enter the Army on the same basis as graduates of the United States Military Academy at West Point.

Service Obligations

A variety of active duty and reserve options are available. Nonscholarship cadets must spend either two years on active duty and four more years in Reserve status or three to six months on active duty followed by Reserve status for seven and one-half years. The manpower requirements of the Army determine the proportion of cadets who serve in each category. Current trends indicate that most requests for active duty for two years will be approved. Similarly, requests for limited active duty (three to six months) have also been approved. Recent graduating classes had their choice of service obligation. An officer beginning two years active duty first attends the Basic Officers Course (normally eight to twelve weeks) of the assigned branch. Upon completion of this course, the officer is assigned in the United States or overseas depending upon the needs of the Army as influenced by the desires of the individual. Those officers selected for three to six months attend their Basic Officers Course, after which they are released to Reserve status.

Cadets accepting a Regular Army commission and Army aviators (cadets who have had flight training) serve a minimum of three years on active duty followed by three years in Reserve status.

Every scholarship cadet (whether commissioned in the Regular Army or the Reserve) serves four years on active duty and two years in Reserve status.

Graduate Study

Active duty deferments may be granted to individuals who wish to attend graduate school at their own expense after commissioning. Current policy is to approve all requests for active duty deferment for two years (three years for law school). Requests for longer deferments will be considered on an individual basis. In addition, fully funded graduate programs are available to selected cadets accepting Regular Army commissions.

Curriculum

Military Science Courses

All cadets take one course each semester in military science. The number of hours per week spent in the classroom varies from semester to semester, as does the credit received. Students in the four-year program are required to take all the courses listed below. Students in the two-year program are required to take all of the courses listed for the junior and senior years.

Freshman Year (MS I)

MS 101 Introduction to Army ROTC and U.S. Military Forces Fall. Credit one hour. AROTC Staff.
An introduction to the fundamentals of military science. The ROTC program will be considered, in discussions, as a cooperative effort between the Army and the University to produce well educated young officers for positions within the national defense structure of the United States. The mission and organization of the U.S. Army

in fulfilling its role in the defense structure is examined to provide students an understanding of the nature and operations of the U.S. Army. The course introduces the student to the complexities facing the military leader-manager, and provides a framework for subsequent instruction.

MS 131 Leadership and Management Spring. Credit one hour. AROTC Staff and Guest Lecturers.
The objective of this course is to develop an understanding and appreciation of the complexities involved in the successful practice of leadership and management. Attention is given to leader types, the source and exercise of power, and the impact of varying styles on effectiveness. The questions of motivation and changing attitudes and their effect on achievement of individual and organizational goals is examined. The need for effective communication is established. The student is introduced to required aspects of personal and professional ethics. The demands upon a military leader in a rapidly changing organization are discussed.

Sophomore Year (MS II)

MS 211 Armed Conflict and Society Fall. Credit three hours. Joint Presentation (Department of Military Science and Department of Naval Science. Lectures by several members of the University faculty in their area of expertise.)
An examination of the interrelationship of political factors, economic influences, technological developments, evolving military strategies, and the psychosociological environment as they have affected armed conflict within society as viewed in the American perspective. Using historical examples for each of the periods covered, the principles and strands of warfare will be studied as well as military strategy and the art of command. Beginning with the Age of Imperialism of the late nineteenth century, lectures will include, the world wars, the period between the wars, the era of nuclear monopoly, limited war–Korea, and modern warfare. The lectures will focus on the interrelationship described above and examine future alternatives to armed conflict in society.

MS 221 Cartography: Theory and Practice Spring. Credit two hours. Joint Presentation (College of Engineering—Department of Civil and Environmental Engineering; College of Agriculture and Life Sciences—Natural Resources Department; and, Department of Military Science).
The course provides the student with a practical knowledge of the various forms of topographic representations. The student develops, interprets, and utilizes maps in terrain association and land navigation. The student's knowledge of topography is complemented with an orientation on significant environmental influences from political, social, and climatic factors.

Junior Year (MS III)

MS 332 Techniques of Military Instruction and Leadership Problems Fall. Credit two hours. AROTC Staff.
The first half of the course involves case studies in leadership and management. Cases involving problems associated with setting goals and standards, motivating performance, handling disruptive influences, and senior subordinate relations are analyzed and discussed. During the second half of the semester students learn principles and techniques of military instruction. Each student is required to give oral presentations of varying lengths and is evaluated on performance.

MS 322 Leadership in Small Unit Operations Spring. Credit two hours. AROTC staff.
The decision-making process is emphasized and applied in conferences and practical exercises involving tactical concepts and fundamentals. The student is introduced to patrolling, the airmobility concepts and tank/infantry team operations in both a classroom and field environment.

Senior Year (MS IV)

MS 423 Military and Civilian Command and Staff Functions Fall. Credit two hours. AROTC Staff.
Selected leadership and management problems in administration, logistics, and operations; and the parallels between military and civilian command and staff organizations are studied with emphasis on the decision-making process.

MS 461 Military Management Dynamics of the 1970s Spring. Credit two hours. Lecture seminars on specific military leadership and command problems, values, and relationships. An introduction to military justice and an examination of the United States' role in world affairs. This final topic is presented by Cornell faculty and other experts in the fields associated with United States foreign policy.

Practical Leadership Training

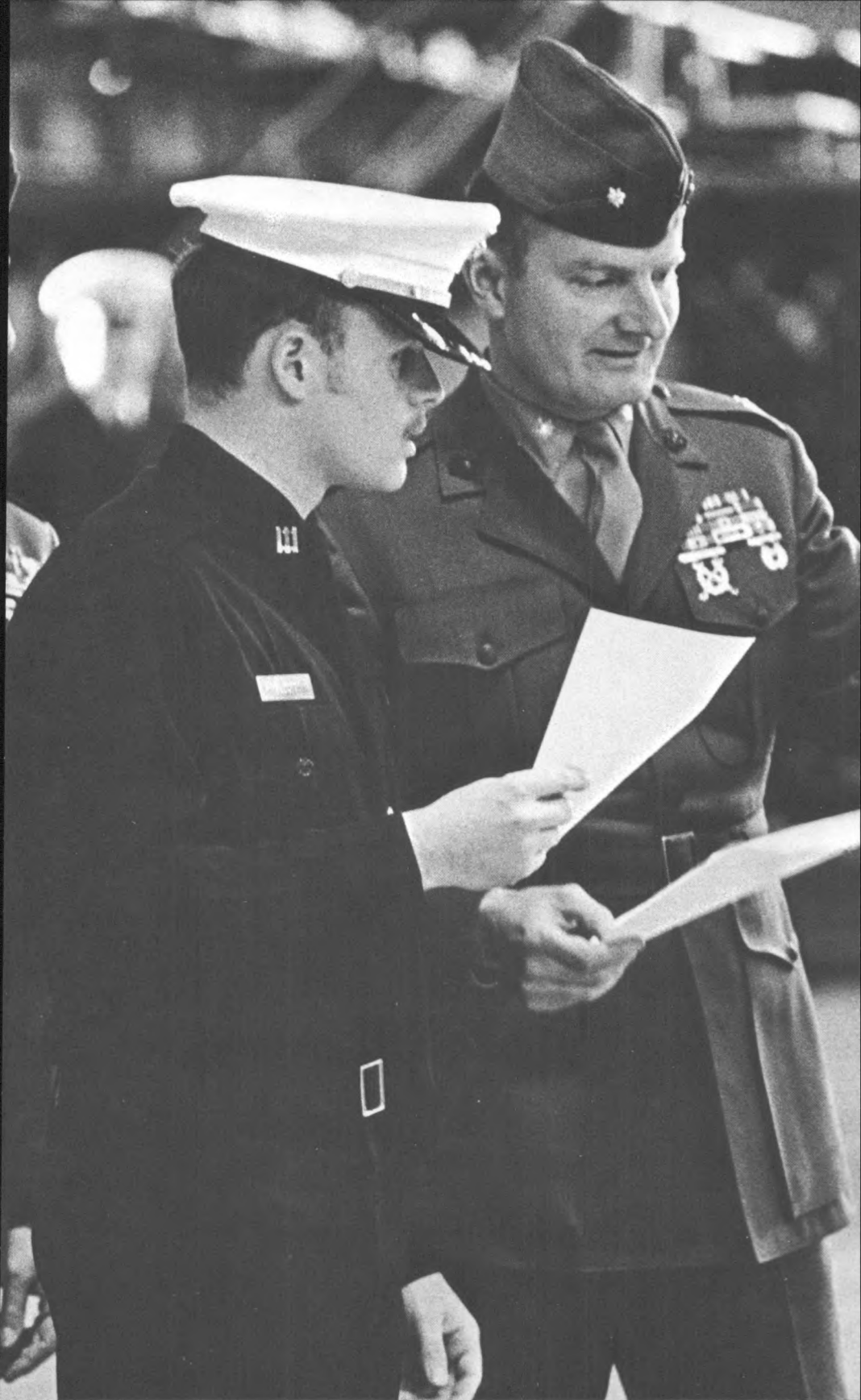
All Cadets

All Army ROTC cadets are organized within a cadet organization that meets for one and one-half hours each week for training in military skills and practical leadership situations. No academic credit is given. Promotions, awards, and decorations are made periodically to ROTC students who demonstrate high ability in both military and academic fields.

The Leadership Laboratory Program is designed to provide each and every student with the opportunity to gain practical leadership experience. The rationale for the form as well as the content of the program is the demonstrated fact that continued exposure to leadership development builds poise and self-confidence. The practical result in terms of the individual participant is a continually developing ability to intelligently and creatively apply the decision-making process to a variety of complex situations while simultaneously supervising the performance of other men and women. Training of this nature is also intended to stimulate additional interest in the Army ROTC program as a whole and, ultimately, in the United States Army. Additionally, it provides the student with an opportunity to learn how to communicate effectively and efficiently with peers, subordinates, and superiors; but most important of all, the program helps instill in each participant a heightened awareness of the vital roles of integrity, cooperation, devotion to duty, and professionalism in the smooth operation of a military organization.

In the Leadership Laboratory, all of these objectives are accomplished by emphasizing practical exercises and first-hand experiences while keeping pure lecture hours to an absolute minimum.

	Fall	Spring
MS I	MS 141	MS 142
MS II	MS 241	MS 242
MS III	MS 341	MS 342
MS IV	MS 441	MS 442



Cornell University

United States Naval ROTC Program

The objective of the Naval ROTC program is to prepare students for service as commissioned officers in the United States Navy or United States Marine Corps by supplementing their undergraduate education with instruction in essential concepts of naval science and fostering development in the qualities of leadership, integrity, and dedication to their country and the naval service. The NROTC program is compatible with any undergraduate major field of study, including five-year baccalaureate degree programs.

The objective is achieved through a broad program, normally covering four years, which combines specific courses in naval science, specified academic subjects to supplement the students' regular academic curricula, and laboratory sessions in which the practical aspects of naval science and leadership procedure are stressed. The program also includes at least one summer-at-sea training period.

Marine Corps Option

NROTC enrollees may apply for the Marine Corps option until the beginning of their junior year. Students selected for this option pursue the same basic program (first two years) as all other NROTC students.

Non-ROTC Students

Though the NROTC program has been designed to prepare future officers, NROTC courses are open to all students at Cornell University as space limitations allow. The non-NROTC student will not be issued uniforms nor be required to attend laboratory sessions and will not receive a commission upon graduation.

Requirements for Enrollment

An applicant for Naval ROTC at Cornell must be a citizen of the United States; by law, male applicants must have reached their seventeenth birthday by June 30th of the entering year and female applicants must have reached their eighteenth birthday by September 1 of the entering year. Applicants must not have reached their twenty-first birthday by June 30th of the entering year. If the applicant matriculates in a major field of study requiring five years for a baccalaureate degree, he or she must not have passed the twentieth birthday on June 30 of the entering year. (Students enrolled in a five-year academic program are placed in a leave status with respect to the Department of Naval Science during the third year.) Waivers of the upper age limit may be granted on an individual basis by the chief of naval personnel up to age twenty-seven and one-half at time of appointment. Applicants must also meet the physical requirements (see below).

There are no restrictions regarding academic courses in which an NROTC student may enroll, provided the courses lead to a baccalaureate degree. A Naval ROTC scholarship student must have the approval of the professor of naval science in the selection of the major course of study; however, there is normally no objection to the student's choice.

Physical

An applicant must have binocular visual efficiency (BVE) correctable to 100 percent by standard lens. No waivers will be granted. Excessive refractive errors also are disqualifying. Defective color perception is disqualifying (except in a few special situations). The minimum height allowable is sixty inches (women), sixty-two inches (men); the maximum is seventy-eight inches. Weight must be proportional to height. An overall sound mental and physical condition is necessary. All NROTC students are given physical examinations at no cost.

Students who plan to take the Marine Corps option must meet the same physical requirements with the exception that defective color perception is not disqualifying.

Four-Year College Program

Students are selected for enrollment in the NROTC college program from freshman applicants during fall registration. A limited number of sophomore applicants are also accepted in the fall. All interested freshmen or sophomores should inquire at the NROTC unit in Barton Hall on the campus, preferably during the fall registration period or earlier.

During the first two years, all NROTC students pursue the basic program. In the junior and senior years, they all pursue an advanced program, but for those in the Marine Corps option the curriculum is different.

Basic Program

All students take one classroom course in naval science each semester. These courses cover fundamental aspects of naval science (an overview of considerations relevant to other required naval science courses), basic principles and interrelation of primary ship systems, evolution and anatomy of warfare, and meaning and applicability of modern seapower and maritime concepts. The number of hours spent in the classroom, and the credit received, varies, but averages about two hours a week. In addition, all students spend ninety minutes each week in professional laboratory sessions which include naval presentations and leadership development.

Students in the basic program must also meet certain academic subject requirements in mathematics, science, and history or government. Some or all of these courses may be taken as part of the students' degree programs, and, in some cases, part of the requirement may be waived based on prior completion of equivalent work.

Advanced Program (Navy)

The advanced program (junior and senior years) is open to students who have successfully completed the basic program and are approved by the professor of naval science. It is also open to selected students who have attended the naval science institute the preceding summer (see Two-Year Program, page 17).

Students entering the advanced program must have two years of academic work remaining at Cornell and must be of such age as will allow qualification for a baccalaureate degree and commissioning before the age of twenty-six. Prescribed physical standards must also be met.

Students who are accepted for the advanced program execute a written contract with the United States government. Under terms of the contract the student agrees to complete the advanced program and to accept a commission if tendered. Signing of the contract constitutes enlistment in the United States Naval Reserve.

Classroom study in the advanced program includes one course each semester in naval science covering such subjects as navigation, naval operations analysis, weapons systems, and naval organization and management. In addition, all students participate in a ninety-minute laboratory session each week which includes leadership sessions and functional periods devoted to the practical application of subject matter taught in the classroom. All midshipmen attend a six-week, at-sea training period during the summer between the junior and senior years. Students in the advanced course also have other academic subject requirements in the areas of computer science and management.

Flight Indoctrination Program

The NROTC Flight Indoctrination Program is available at no cost to all junior and senior NROTC students (including those in the Marine Corps option) who are motivated toward aviation. Students must pass a naval aviation physical examination to be eligible for the program. Physicals are arranged at no cost to the student.

This selective program affords an opportunity to become proficient in the fundamentals of aviation and qualify for a private pilot's license through the Federal Aviation Agency. The program consists of thirty-five hours of ground instruction and forty hours of flying instruction, provided by a local flying school.

Advanced Program (Marine Corps)

The advanced program (junior and senior years) is open to students who have successfully completed the basic program and are approved by the professor of naval science. It is also open to selected students who have attended the naval science institute the preceding summer (see Two-Year Program, p. 17).

Any student entering the advanced program must have two years of academic work remaining at Cornell and must be of such age as will allow qualification for a baccalaureate degree and commissioning before the age of twenty-six. Prescribed physical standards must also be met.

Students accepted for the advanced program execute a written contract with the United States government. Under terms of the contract the student agrees to complete the advanced program and to accept a commission, if tendered. Signing of the contract constitutes enlistment in the United States Naval Reserve.

The advanced program includes a course in amphibious warfare. Laboratory periods include drill, tactics, administration, and leadership.

Summer training consists of a six-week pre-commissioning training and screening at the Marine Corps base, Quantico, Virginia, between the junior and senior year. Students in the advanced course also have other academic subject requirements.

Flight Indoctrination Program

See p. 16.

Two-Year College Program

The two-year program consists of the last two years (the advanced program) of the regular four-year program, plus attendance at the six-week naval science institute at Newport, R.I. preceding enrollment. For details, see Advanced Program (Navy), and Advanced Program (Marine Corps), p. 16.

Second-semester sophomores in good standing who are enrolled at Cornell or who will be transferring to Cornell are eligible applicants. (The program is also open to graduate students.) Candidates must meet other specified academic and physical requirements. Interested students may obtain details on requirements at the NROTC unit in Barton Hall on campus.

Initial application for the program is made to the professor of naval science; however, final selection is made by the chief of naval education and training since a nationwide limit exists on the total number of students who can be in the program. Selected students are notified in the spring term of their sophomore year and are then required to attend the naval science institute (a six-week off-campus training session) during the summer preceding their junior year.

Some NROTC scholarships are awarded to students on completion of the naval science institute based on their performance. It is also possible for some students to gain NROTC scholarships during their junior year based on the recommendation of the professor of naval science with the approval of the chief of naval education and training.

Benefits

Each midshipman in the advanced program receives $100 subsistence allowance per month for ten months each year. Each student also receives active duty pay of approximately $300 a month and travel expenses for the summer-at-sea training periods. In addition, uniforms and books required by NROTC are provided.

A midshipman in the two-year program receives the same benefits during his junior and senior year as other midshipmen in the advanced program. In addition he receives room, board, approximately $490, and travel allowance (to and from one's home within the continental United States) for the naval science institute that must be attended during the summer preceding the junior year.

Students in the Marine Corps option receive the same benefits as other NROTC students.

Scholarships

Naval ROTC scholarships cover all tuition, fees, and textbooks as well as a subsistence allowance for each midshipman of $100 a month for ten months each year. Four-year NROTC scholarships are awarded annually to secondary school seniors chosen by state selection boards on the basis of nationwide competition. Additional scholarships may be awarded each year to a few outstanding freshmen, sophomores, and juniors who are enrolled in the college program. An applicant must have vision correctable to 20/20, and the major subject must be approved by the professor of naval science. A midshipman who is awarded a scholarship continues to receive the scholarship support until graduation so long as requirements continue to be fulfilled.

Scholarship students must attend three summer training periods (following the freshman, sophomore, and junior years), of which two are normally at sea.

Commissioning

All students who successfully complete the advanced program of the NROTC and who are awarded a baccalaureate degree are commissioned upon graduation. Nonscholarship students who were in the NROTC advanced program (Navy) receive commissions as ensigns, Naval Reserve; those who were in the Marine Corps option receive commissions as second lieutenants, Marine Corps Reserve.

Scholarship students in the Marine Corps option are commissioned as second lieutenants, Marine Corps; scholarship students (Navy) are commissioned as ensigns, Navy.

Service Obligations

Navy

Graduates have an opportunity to request their preferred type of duty upon graduation. Included among the types of duty are naval aviation, submarines, large and small surface ships, nuclear power training, civil engineering corps, and supply corps. These requests are given careful consideration, and every effort is made to assign the newly commissioned officer to the duty of his choice. Graduates are ordered to sea duty or shore duty as the needs of the service require.

Nonscholarship midshipmen must, after graduation, spend three years on active duty in the

Naval Reserve, followed by three years in the Ready Reserve. A graduate who was a scholarship student serves a minimum of four years of active duty in the Navy. Graduates who elect to leave active duty at that time must serve two years in the Ready Reserve.

Graduates entering the nuclear power program incur one additional year of active duty; those entering aviation incur an active duty obligation of four and one-half years after completion of pilot training or three and one-half years after completion of naval flight officer training.

Marine Corps

All graduates, whether commissioned in the Marine Corps or Marine Corps Reserve, attend a six-month basic course at Quantico, Virginia. Upon completion of the basic course, each officer submits a preference for type of duty. Major types of duty include infantry, aviation, field artillery, engineer, tracked vehicles, supply, and communications.

Nonscholarship graduates must, after graduation, serve three years on active duty in the Marine Corps Reserve followed by three years in the Ready Reserve. A graduate who was a scholarship student serves a minimum of four years on active duty in the Marine Corps. Graduates who elect to leave active duty at that time must serve two years in the Ready Reserve.

Graduates entering aviation must spend the same period on active duty after completion of flight training as naval officers.

Graduate Study Deferments

Delays in active duty to attend graduate school are available to a limited number of NROTC students, depending on the Navy's needs at the time. In addition, highly qualified students may apply for the Navy's Immediate Graduate Education Program (IGEP) which leads to a master's degree in many academic fields. Graduate education opportunities are also available after the initial tour of duty.

Curriculum

Naval Science Courses

All midshipmen in the four-year program are required to take the courses listed below for the freshman and sophomore years. All midshipmen in the two-year and four-year programs (except those in the Marine Corps option) are required to take the courses listed below for the junior and senior years (Navy). Students in the Marine Corps option take the course listed specifically for them under Senior Year (Marine Corps), p. 20.

Freshman Year

NS 101 Fundamentals of Naval Science Fall. No credit. One class each week (lecture–recitation). NROTC staff.
A study of fundamental aspects of naval science including its conceptional contributions to seapower, factors involved in the physical development of naval forces, resources which must be managed, and prospects for the future.

IMG 101 Naval Ship Systems Spring. Credit three hours. Three classes each week (lecture–recitation). Hours and staff as scheduled in the *Announcement of the College of Engineering.*
The course is an introduction to primary ship systems and their interrelationship. Basic principles of propulsion, control, internal communications, structure, and other marine systems are considered.

Sophomore Year

MS 211 Armed Conflict and Society Fall. Credit three hours. Joint presentation (Department of Military Science and Department of Naval Science).
Designed to examine the interrelationships of political, economic, technological, and social factors as they have affected the conduct of armed conflict and the individuals in the conflict.

NS 201 Seapower-Maritime Affairs Spring. Credit one hour. One seminar weekly. NROTC staff.
The seminar discussions explore the meaning and modern applicability of seapower concepts, including such components as naval power, ocean science, ocean industry, ocean commerce, and international law.

Junior Year (Navy)

IIA 153 Principles of Navigation Fall. Credit four hours. Four classes each week (lecture–recitation–project work). As scheduled in the *Announcement of the College of Engineering.* G. B. Lyon.
The course covers coordinate systems, chart projections, navigational aids, instruments, compass observations, tides and currents, and soundings. It also includes celestial navigation: time, spherical trigonometry, motion of the stars and sun, star identification, position fixing, and use of the nautical almanac; and electronic navigation.

NS 321 Naval Operations Analysis Spring. Credit three hours. Three classes each week (lecture-recitation). Times to be arranged. NROTC staff.
The course covers processes of planning and executing naval operations and review of the principles of probability, two-person zero-sum game theory, and mathematical models of detection theory. It also includes examination of

sensors, weapons, and supportive elements and their application in naval operations. Practical wcrk in planning and coordination of operations is given, and the course concludes with a problem in which opposing student teams plan a typical naval operation and write an operation order.

Senior Year (Navy)

NS 451 Naval Weapons Systems Fall. Credit three hours. Three classes each week (lecture-recitation). Times to be arranged. NROTC staff.
An advanced level course dealing with the function, importance, capabilities, design, and development of naval weapons systems. Subject material covers such topics as military capabilities of major political powers, arms limitation, Department of Defense budgetary considerations, and a detailed analysis of representative naval fire control systems including detection and evaluation systems, weapons command and control, delivery systems, and ordnance.

NS 431 Naval Organization and Management Spring. No credit. One class each week (seminar). NROTC staff.
Discussions cover scientific principles and functions of management relevant to the naval environment and the structure of naval organization. Theories and findings from the behavioral sciences relevant to leadership are explored, with particular emphasis on self-development and individual responsibility.

Senior Year (Marine Corps)

NS 311 Amphibious Warfare Spring. Credit three hours. Three classes each week (lecture-recitation). Times to be arranged. NROTC staff.
The course covers the development, theory, techniques, and conduct of amphibious operations beginning with Gallipoli in 1915. Special emphasis is placed upon amphibious operations conducted in the central Pacific during World War II.

Other Required Courses

In addition to the academic major and naval science, NROTC students are required to take a number of other University courses. All students (Navy and Marine Corps-option) are required to have three credit hours of history or government. All Navy students must also take three credit hours of management.

Scholarship Navy students have further requirements consisting of six credit hours of calculus, six credit hours of physics, and three credit hours of computer science. The professor of naval science may authorize waivers of some requirements based on prior satisfactory completion of equivalent courses. In a limited number of cases, the professor of naval science may authorize substitutions of other science courses in place of physics and other mathematics courses in place of calculus. Listed below are courses that NROTC students may use in satisfying these requirements. The academic year in which courses are taken, while not mandatory, is recommended in the sequence shown.

Freshman and Sophomore Years

Physics

BPS 112, 213(217), 214(218) Physics I, II, and III
Phys 101–102 General Physics
Phys 207–208 Fundamentals of Physics

Calculus

BMA 191, 192(194) Calculus for Engineers
Math 105–106 Finite Mathematics and Calculus for Biologists
Math 107 Finite Mathematics for the Biological and Social Sciences
Math 108 Calculus with Applications to the Biological and Social Sciences
Math 109(111), 110(112 or 122) Calculus

Government and History

Gov 111 American Government and Politics
Gov 112 American Government (Seminar)
Gov 181 Introduction to International Relations
Gov 316 The American Presidency
Gov 318 The American Congress
Gov 349 Political Role of the Military
Gov 375 American Political Thought
Gov 384 Defense Policy and Arms Control
Gov 387 The United States and Asia
Gov 388 The United States and Western Europe
Hist 314 History of American Foreign Relations
Hist 414 Motivation of American Foreign Policy

Junior and Senior Years (Navy)

Computer Science

IBE 105 Elements of Engineering Communication
ICS 101 Survey of Computer Science
ICS 102 Introduction to Computer Programming
ICS 211 Computers and Programming
ICS 314 Introduction to Computer Systems and Organization
IMS 389 Computer-Aided Design
Plan 436 Introduction to Computers in Planning
H Adm 114 Information Systems I
Ru Soc 440 (AGR) Introduction to Computer Uses in Data Analysis

Management

BPA 120 Organization Theory and Behavior
BPA 121 Personnel Administration and Human Relations
PSY 206 Psychology in Business and Industry
H Adm 211 Personnel Management
ILR 151 Personnel Administration in Supervision
ILR 360 Manpower and Organization Management

ILR 627 Leadership in Organizations
ILR 664 Management and Leadership Development
ILR 665 Case Studies in Personnel Administration

Junior and Senior Years (Marine Corps)

Each student in the Marine Corps option is required to take two courses for three credits each (one in the junior and one in the senior year) from the following list of selected subjects. The courses chosen must be approved by the Marine Corps option instructor.
Anthropology
Behavioral Sciences
Communication Methods
Computer Sciences (upper-level)
Economics
Geography
Languages
Management Engineering
Philosophy
Political Science
Sociology
World History

Professional Laboratories

NS 141-142, 241-242, 341-342, or 441-442 All students in the NROTC programs (including those in the Marine Corps option) participate in one ninety-minute laboratory session each week of each term of the program. The sessions are held from 2:30 until 4:00 o'clock on either Wednesday or Thursday afternoons. These periods, planned and implemented for the most part by midshipmen officers in the battalion organization, consist of both drill and professional information briefings. Students gain experience in actual leadership situations and at the same time learn the fundamentals of military formations, movements, commands, discipline, courtesies, and honors. During information briefings, special emphasis is given to applied leadership as it relates to the administrative and managerial aspects of a naval officer's duties.

Cornell University

United States Air Force ROTC Program

The overall objective of the AFROTC program at Cornell is to prepare highly qualified men and women for positions as officers in the United States Air Force. The program is designed to provide the student with a background of aerospace knowledge and to further develop qualities of leadership, integrity, and self-discipline.

The objectives are achieved through four-year and two-year programs. These programs include specific courses in aerospace studies, an academic course in management, and practical laboratories (corps training).

Entering students are assigned to one of four categories: flying (pilot-navigator), missile, engineering-science, and general service. These assignments are based on the student's preferences, qualifications, academic field of study, and the needs of the Air Force.

Requirements for Enrollment

The Air Force ROTC program is open to male or female undergraduate or graduate students enrolled in any major field of study. The student's academic course of study is often a prime factor in determining the kind of career pursued in the Air Force. (See Air Force Careers, p. 25).

Applicants who are interested in flying (as pilot or navigator) or missile duty make that request known at the time they enter the program.

All applicants receive physical examinations at no cost and, to be accepted, must meet the physical requirements listed below. Overall sound physical and mental condition is essential.

Physical

Every applicant must be free from any limiting physical infirmity and must have normal hearing, blood pressure, and heartbeat. Weight must be normal for height and age.

Following are the additional specific requirements for nonflying categories.

Vision: bilateral distant vision without corrective lenses, at least 20/400
Height (for men): at least 64 but not more than 80 inches; (for women): at least 60 but not more than 72 inches
Allergy: no history of asthma since twelfth birthday
Dental health: good

Those students who are interested in qualifying for flying categories (pilot/navigator) must meet the following specific requirements.
Vision (for pilot candidates): 20/20 bilateral near and far vision without corrective lenses; (for navigator candidates): bilateral near vision at least 20/20 without corrective lenses and bilateral far vision at least 20/70 without correction, providing it is correctable to 20/20 with lenses
Color vision: normal
Height: at least 64 but not more than 76 inches; sitting height not more than 39 inches
Allergy: no history of asthma or hay fever since twelfth birthday
Dental health: good

Four-Year Program

The four-year program is open to male or female students in the first term of their freshman year. Students in a five-year degree program may, with the approval of the Department of Aerospace Studies, enroll in their sophomore year.

Veterans of the United States armed forces and students entering Cornell from military schools may also enroll and may receive advanced standing, subject to approval by the professor of aerospace studies.

The four-year program consists of the basic program (first two years) and the Professional Officer Course (advanced program) during the junior and senior years. The basic program carries no military commitment and students may withdraw at any time during that period.

Basic Program

Students in the basic program take one hour of classroom work in aerospace studies each semester. During the freshman year, the role of United States military forces in the contemporary world is examined with emphasis on the organization and mission of the United States Air Force. The functions of strategic offensive-defensive forces, general purpose forces, and aerospace support forces are covered. In the sophomore year, the student will study the history and development of airpower, and the employment of the air forces in both military and civil emergency missions.

Students also spend one hour a week in corps training which includes classroom instruction in responsibilities and environment of the junior officer and instruction and practice in basic drill and ceremonies. In addition, all students participate in summer field training for four weeks between the sophomore and junior years.

Professional Officer Course

The Professional Officer Course (POC) is an advanced course of instruction in aerospace studies and leadership experiences during the junior and senior years. Students who are accepted for the POC must have successfully completed the basic course and must meet the academic and physical standards. Some students who were not in the basic program are also accepted if they meet certain requirements and attend a six-week training course during the summer before enrollment (see Two-Year Program, this page).

Each cadet accepted into the POC must sign an agreement to complete the program and accept, if tendered, a commission in the Air Force Reserve upon graduation.

Classroom study in the POC requires three hours a week each semester. In the junior year this includes one course in aerospace studies stressing leadership and officer responsibilities and an academic course in management.

During the senior year, cadets study the elements of national security. Corps training requires an average of one hour a week in the junior and senior years and consists of a leadership laboratory in which the cadet is exposed to advanced leadership experiences and applies principles of management learned in the classroom.

Flight Instruction Program

All cadets accepted for pilot training participate, in their senior year, in the Air Force ROTC flight instruction program at no cost.

This program consists of ground school and thirty-six and one half hours of flying training in a light aircraft. Instruction is provided by a local civilian flying school. Upon completion of the program, a cadet may apply for a private pilot's license through the Federal Aviation Agency.

Choice of Service Career

Cadets in the first year of the POC are given the opportunity to specify the career field in which they would like to serve after graduation. (See Air Force Careers p. 25).

Two-Year Program

The two-year program consists of the last two years (the Professional Officer Course) of the regular four-year program plus a six-week summer training course preceding enrollment. (See this page for details of the Professional Officer Course.)

The two-year program is open to male and female students with two years of academic study remaining at Cornell (graduate or undergraduate). Applications are accepted from November through May of the year preceding the applicants' planned entry into the program. Selectees are then required to successfully complete a six-week summer training program at government expense.

Benefits

Each cadet in the advanced program (POC) receives $100 per month nontaxable subsistence allowance. For the four-week summer field training (between the sophomore and junior years), each cadet receives $280.28 plus an allowance for travel to and from the field training site. Uniforms, textbooks, and supplies required by AFROTC are provided by the Air Force.

A cadet in the two-year program receives the same payments as other cadets in the POC, and, in addition, receives $430.08 and travel allowance for the six-week summer field training session prior to entry into the POC.

Scholarships

The Air Force awards 6,500 scholarships annually. Four-year AFROTC scholarships are awarded to selected high school seniors. Three- and two-year scholarships are awarded annually, on a competitive basis, to students enrolled in Air Force ROTC. One-year scholarships are sometimes awarded when necessary, to insure that all 6,500 scholarships are active. Applicants for the AFROTC two-year program are also eligible for scholarship consideration. Financial status or the winning of other scholarships is not disqualifying with regard to AFROTC scholarship awards. Acceptance of an AFROTC scholarship does not commit an individual to serve any additional time on active duty with the Air Force.

A scholarship cadet receives $100 per month, all tuition, fees, and reimbursement for the cost of textbooks for the duration of the scholarship.

Commissioning

All students who successfully complete the AFROTC advanced program (POC) and who are awarded a baccalaureate degree are commissioned as second lieutenants in the Air Force Reserve.

Air Force Careers

Air Force policy has been to assign new officers to a career field which closely approximates their educational background. Students in the engineering-scientific category may be assigned to practice in their specialty in research and development, communications, aeronautics, astronautics, design and development, the biological sciences, computer design and maintenance, weather, or various other engineering and scientific fields. They will work under the supervision of some of the most highly qualified people in their field and have access to the latest scientific facilities and equipment.

Any undergraduate major is suitable for those who are interested in and qualified to be pilots or navigators. After completion of flying training, they are assigned primary duties flying various kinds of aircraft.

Officers that elect missile duty will be sent to school for training in that field. Upon completion of school they will be assigned to one of the operational missile bases as a crew member. This type of assignment provides an opportunity for a young officer to obtain command experience and also enjoy the extra option of enrolling in a graduate program.

Those officers graduating under the general category can anticipate assignments in manpower management, administration, logistics, police and investigation, intelligence, personnel, transportation, information, and numerous other career fields. They will use their educational backgrounds in positions of responsibility and be given the opportunity to develop further their managerial and administrative skills.

Service Obligations

Second lieutenants commissioned from the AFROTC program in nonflying categories are required to serve on active duty for four years. Pilot and navigator trainees are required to serve on active duty for five years after completing flying training and receiving their aeronautical rating. Many newly commissioned officers are allowed to postpone their active service in order to remain in college and earn advanced degrees. (See Graduate Study Deferments, this page.)

Graduate Study Deferments

Newly commissioned officers may request a delay in reporting for active duty in order to undertake graduate study at their own expense. Weather officer candidates may receive one postgraduate year of college at government expense with no additional service obligation. Adjusted promotion service credit is given to officers delayed for the purpose of pursuing advanced degrees.

Curriculum

Aerospace Studies Courses

Students in the four-year program are required to take all the courses listed below. Students in the two-year program are required to take all of the courses listed for the junior and senior years.

Freshman Year

AS 161 United States Military Forces in the Contemporary World Fall. Credit one hour. One class each week. G. H. Raroha.
An introductory study of current United States military forces with emphasis on the analysis of the doctrine, mission, and organization of the United States Air Force. The Air Force's Strategic Air Command and the Navy's Fleet Ballistic Missile System are explored as elements of strategic offensive forces. Aircraft and missile defense is studied. A field trip to an Air Force SAGE Center is included.

AS 162 United States Military Forces in the Contemporary World Spring. Credit one hour. One class each week. G. H. Raroha.
A study of the general purpose and aerospace support forces of the United States, with emphasis on the mission, resources, and operation of tactical air forces. Included is an overview of defense organization and sources of power.

Sophomore Year

AS 211 Development of Air Power Fall. Credit one hour. One class each week.
The factors leading to the development of air power and the concepts and doctrine for the employment of air power studied. The course reviews the history of manned flight. The effects of World War I on the employment of airpower are studied and the struggle for the development of an independent air arm is analyzed. The course also examines the employment of airpower in World War II, including such topics as strategic bombing, tactical airpower, and the role of air superiority in warfare.

AS 212 Development of Air Power Spring. Credit one hour. One class each week.
The employment of the Air Force since World War II in military and nonmilitary operations to support national objectives is studied. The effects of technology on defense policy and strategy are analyzed. Quasi-military employment of the air arm in such activities as the Berlin Airlift and national and international relief missions in Asia, Africa, and the Americas is discussed. The role of airpower in the Korean conflict, the Cuban and Middle East crises, and the Vietnam War is examined from the viewpoint of technology and tactical doctrine.

Junior Year

AS 331 The Professional Officer Fall. Credit three hours. Three classes each week. E. J. Heberling.
Air Force leadership at the junior officer level is studied and includes basic concepts of human behavior, motivation, and human relations. Leadership and leadership variables are analyzed by group discussion, case studies, and role playing. Essentials of the military justice system are examined. Cadets present oral and written reports.

Senior Year

AS 461 National Security Forces in Contemporary American Society Fall. Credit three hours. Three classes each week.
The course will examine the functions and roles of the professional officer in a democratic society and how they relate to the socialization processes, prevailing public attitudes, and value orientations associated with professional military service. Throughout the course, the students will prepare research papers and make oral presentations on topics of contemporary military interest. The course will move from contemporary civil-military relations to the study of the formulation of defense policy and will address the political, economic, and social constraints. It will explore the requisites for maintaining adequate national security forces and seek to assess the impact of technological and international developments upon strategic preparedness and the overall defense policy-making process.

AS 462 National Security Forces in Contemporary American Society Spring. Credit three hours. Three classes each week.
This semester will continue the investigations and cases of AS 461 in more scope and detail and require additional student participation in oral and written studies. Some time at the end of the course will be reserved to acquaint the student with some of the practical requirements for making a smooth transition from student to the professional active duty military officer.

Management Course

During the junior year each cadet must successfully complete one of the following courses in management.

BPA 120 Organization Theory and Behavior Spring. Credit three hours. T. M. Lodahl, D. B. Smith, and K. E. Weick.
Theories and empirical research on human behavior in business, public, and medical care organizations are studied, and their management applications are explored. Problems of internal structure are examined, such as specialization and division of labor, hierarchy and authority, informal organization, and structural variations in organization. Dynamics of organizational behavior are also treated under such topics as leadership and supervision, motivation and the social structure of work groups, and communication and control processes. The course is presented through readings and through discussion of theory and empirical research.

ILR 360 Manpower and Organization Management Credit three hours. Spring. Department faculty.
Focuses on the management of personnel in organizations. Deals with manpower planning, recruiting, selection, wages and salary administration, training, performance appraisal, organizational development, and the administration of personnel department activities. Special attention is paid to government manpower policy and its implications to personnel management.

ILR 151 (450) Personnel Administration in Supervision Fall and spring. Credit three hours. F. Miller.
A review of the personnel function in business and industry with emphasis on the personnel responsibilities of the line supervisor. Closely linked to evidence developed by behavioral sciences research. Topics for discussion will include organization theory, leadership, organization structure and change, group influences on individuals, employee motivation, and other human problems of management. Specific personnel administration functions and practices, as they are related to these problems, also will be included, e.g., selecting, inducting, and developing techniques for interviewing, adjusting complaints and grievances, and aiding in the solution of employee and supervisory problems. Selected readings, case studies, discussions, and projects.

HA 211 (113) Personnel Management Fall and Spring. Credit three hours. D. A. Dermody.
A practically oriented approach to personnel management, including an introduction to organizational behavior, the selection and placement of personnel, the role of supervision,

performance appraisal, wage and salary administration, employee motivation and union-management relations. Class discussion is based on case studies drawn from industry. Lectures are augmented by use of case material and role playing.

IMG102 (3020) Technology and Society—A Historical Perspective (u) Spring. Credit three hours. Approved as a liberal elective for undergraduates in engineering. Three lecture-discussions. B. J. Conta.
An introduction to the history of technology and its relationship to society. Emphasis will be upon the interactions between technology and the corresponding economic, social, and political developments of the period, rather than upon the internal history of technology. The period of major interest will be the nineteenth and twentieth centuries. Both the material abundance and the explosive problems of the twentieth century had their origins in two dramatic developments of the nineteenth century. One was the emergence of the Watt steam engine as a general purpose prime mover and the vast increase in available power it made possible by the exploitation of the thermal energy of wood and the fossil fuels. A second and less obvious development was a change in the technological motivation. Technology changed from a response to the needs of man (necessity as the mother of invention) to a response to the possibilities of science (invention as the mother of necessity—the technological imperative).

Laboratory (Corps Training)

All AFROTC students spend one hour each week throughout the program in corps training for which there is no academic credit. The laboratories are conducted by AFROTC staff.

Freshman and Sophomore Years

AS 141-142 and AS 241-242 Laboratory in Initial Military Experiences Cadets are introduced to the responsibilities, life, and work of an Air Force officer. They gain experience in actual leadership situations and learn the fundamentals of military drill and ceremonies, the wearing of the uniform, military courtesy, discipline, and organization.

Junior and Senior Years

AS 341-342 and AS 441-442 Laboratory in Advanced Leadership Experiences A cadet military organization, the Cadet Squadron, is used as a vehicle to develop leadership potential. Cadets plan, organize, conduct, and supervise all activities in the Cadet Squadron and thus develop practical experience in the duties, functions, and responsibilities of Air Force commanders.

Extracurricular Organizations

ROTC Honor Societies

Scabbard and Blade

The National Society of Scabbard and Blade, a tri-service military honorary society, is represented at Cornell by Company C, 1st Regiment. Its purpose is to raise the standard of military education in colleges and universities, to unite the military departments in closer relationship, to encourage and foster the essential qualities of good and efficient officers, and to promote friendship and good fellowship among all cadet officers. Membership is selected from ROTC cadets of all three services.

Narmid

The NARMID Society, the naval honorary society, is open to members of the junior and senior class and second-term sophomores who stand high in their classes in aptitude for the service. NARMID acts as a service organization managing the extracurricular social, athletic, and journalistic activities program for midshipmen in the NROTC unit. The society also conducts its own social and fraternal program to promote the spirit of comradeship among the members. Because of its wide range of activities, the society enables its members to assume responsibilities early, and better prepare them for the duties required of officers in the United States Navy and Marine Corps.

Semper Fidelis Society

The Semper Fidelis Society is the Marine Corps honorary society. Those eligible for membership are Cornell students enrolled in a program leading to a commission as an officer in the United States Marine Corps.

The objective of this society is to prepare its members for their responsibilities as officers of the United States Marine Corps. This is accomplished by the dissemination of information pertinent to a better understanding of officers' duties, by the stimulation and protection of the high tradition and ideals of the United States Marine Corps, by the promotion of good fellowship, and by the cultivation of social virtues among the members.

Arnold Air Society

The Arnold Air Society is a national honor society, named for the late General Henry H. (Hap) Arnold of the Air Force. It was organized in order to further the purpose, mission, tradition, and concept of the United States Air Force as a means of national defense, to promote American citizenship, and to create a close and more efficient relationship among the Air Force Reserve Officers Training Corps cadets. Membership is offered to a limited number of Air Force cadets. The society has more than 170 squadrons on campuses of various colleges and universities in the United States and Puerto Rico.

Other Organizations

Cornell Rangers

The Cornell Rangers is an organization dedicated to fostering skills which increase an individual's confidence and help them become an effective leader. Its long-range objectives are to help members realize the value of staying in good physical condition, to achieve proficiency in Ranger operations, to promote enthusiasm for the ROTC program, and to motivate qualified students to seek careers in the Army. Membership is open to any Cornell student.

Rifle Teams

The Army sponsors an ROTC rifle team that competes for national and intercollegiate honors through the medium of postal matches.

Register

University Administration

Dale R. Corson, President of the University
W. Donald Cooke, Acting University Provost and Vice President for Research
Mark Barlow, Jr., Vice Provost
William D. Gurowitz, Vice President for Campus Affairs
Robert T. Horn, Vice President and Chief Investment Officer
Samuel A. Lawrence, Vice President for Administration
E. Hugh Luckey, Vice President for Medical Affairs
Thomas W. Mackesey, Vice President for Planning
Paul L. McKeegan, Vice Provost
Arthur H. Peterson, University Treasurer and Chief Fiscal Officer
Richard M. Ramin, Vice President for Public Affairs
Robert F. Risley, Vice Provost
Neal R. Stamp, University Counsel and Secretary of the Corporation

Faculty and Staff

Department of Military Science

Colonel Robert L. Chamberlain, United States Army, Professor of Military Science and Commanding Officer of the Army ROTC Instructor Group
Major Robert B. Brown, Infantry, United States Army
Captain John C. Anderson, Infantry, United States Army
Captain William W. Huling, Jr., Field Artillery, United States Army
Captain William J. McKemey, Jr., Air Defense Artillery, United States Army

Department of Naval Science

Captain Samuel L. Doak, United States Navy, Professor of Naval Science and Commanding Officer, Naval ROTC Unit
Commander Kenneth C. Eckerd, United States Navy
Major Robert F. King, United States Marine Corps
Lieutenant Barry H. Chalfant, United States Navy
Lieutenant William R. Satak, United States Navy

Department of Aerospace Studies

Lieutenant Colonel Earl J. Heberling, United States Air Force, Professor of Aerospace Studies and Commander of the Air Force ROTC Detachment 520
Major George H. Raroha, United States Air Force
Captain Thomas L. Stenstrom, United States Air Force

Index

List of Announcements

Following is a list of *Announcements* published by Cornell University to provide information on programs, faculty, facilities, curricula, and courses of the various academic units.

Agriculture and Life Sciences at Cornell
New York State College of Agriculture and Life Sciences: Courses
College of Architecture, Art, and Planning
College of Arts and Sciences
Department of Asian Studies
Graduate School of Business and Public Administration
Field of Education (Graduate)
College of Engineering
Engineering at Cornell
Graduate Study in Engineering and Applied Sciences
General Information*
Graduate School
Graduate School: Course Descriptions
School of Hotel Administration
New York State College of Human Ecology
New York State School of Industrial and Labor Relations
Law School
Medical College (New York City)
Graduate School of Medical Sciences (New York City)
Cornell University—New York Hospital School of Nursing (New York City)
Graduate School of Nutrition
Officer Education (ROTC)
Summer Session
New York State Veterinary College

* The *Announcement of General Information* is designed to give prospective students pertinent information about all aspects and academic units of the University.

Requests for the publications listed above should be addressed to

Cornell University Announcements
Edmund Ezra Day Hall
Ithaca, New York 14850.

(The writer should include a zip code.)

Further Information

Further information regarding admission to the ROTC programs at Cornell may be had by filling out and mailing this form.

Cross out all but the desired addressee. Check only one box (AROTC, NROTC, or AFROTC). Additional specific questions may be written on the reverse side.

Professor of Military Science (Army ROTC)
Professor of Naval Science (Naval ROTC)
Professor of Aerospace Studies (Air Force ROTC)

Barton Hall
Cornell University
Ithaca, New York 14850

Dear Sir:

I would like to receive more information about

☐ AROTC

☐ NROTC

☐ AFROTC

_____
name

_____
address

_____
city state zip

_____
name of school or college I will be entering

_____
signature